An Assessment of Funding Delay in Government Project

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Abstract

Funding delays in Government Projects, particularly in Department of Defense (DoD) projects, continue to provide Government Program Managers with scheduling challenges. In this paper, the author analyses the DoD Government Program Manager's environment, starting with a review of its key elements; including the Government's budgetary process, life cycle management approach, systems engineering & test approach, and program management requirements. The author continues with an overview of Government projects affected by different types of funding delays and the schedule impact of those delays. The points addressed are schedule impacts of funding delays in types of budgetary appropriations; schedule impacts caused by funding delays in the quantity of dollars; and schedule impacts caused the timing of dollars allocated to the project. The paper then provides a specific example of schedule impacts of the types of funding delays on a selected Government project. The author's conclusion is Government Program Managers will continue to be challenged to establish and maintain schedules based the Governments' budgetary process and life cycle management requirements.

Introduction

DoD Government Program Managers are governed and must operate in a unique environment governed by DoD Directive 5000.1, DoD Instruction 5000.2, and other DoD Regulations, Policies, and Federal Law. DoD Defense Acquisition Policy requires the Government Program Manager to manage the development, production, fielding, and life cycle management of a product from cradle to grave. Given this environment, a DoD Program Manager must manage multiple major Functional Area schedules during the life cycle of the Program. The major Functional Areas are Program Management and Leadership (includes maintenance of a Program level Milestone Schedule), Earned Value Management, Contract Management, Funds Management, Systems Engineering, Software Acquisition Management, Test and Evaluation, Manufacturing and Production, and Logistics Management. Thus, the DoD Program Manager actually manages multiple Functional Area schedules within an overall master program schedule.

The DoD Program Manager' master schedule is divided into four major life cycle phases: Concept and Technology Development, Systems Development and Demonstration, Production and Deployment, and Operations and Support. Each of the first three phases culminates with a Milestone Review. The Milestone Reviews are identified as Milestones A, B, and C. The reviewing authority and requirements for the successful completion of each Milestone Review varies based on the magnitude of the dollars involved with the Program. In general, the larger the dollars required for the Program, the higher the level of reviewing authority and the greater the requirement to document the Program. In addition, each functional area (I.E. Test & Evaluation, Systems Engineering, Logistics, Software Engineering, etc) within a Government Program Office has its own schedule of activities and documentation that must be completed prior to successful completion of each Milestone Review.

Successful completion of Milestone Reviews is also the catalyst for the funding of DoD Government Programs. Government Programs within DoD are funded under a six (6) year Congressional Budgetary document called the Program Operating Memorandum (POM). The POM undergoes a major update every other year and a minor update in the off year. The POM divides funding appropriations into three types—Research Development & Test (RDTE), Procurement (OPA), and Operations Maintenance and Support (OMA). These three types of funds are appropriated by Congress and mandated by Federal Law for use only on specific types of activities within the life cycle of the Program. The Government Program Manager must use each of these types of funds (often referred to as "colors of money") only for their specified purposes. Each type of the various "colors of money" is appropriated to a Government Program Manager at the outset of the Program. The Government Program Manager receives funding by Fiscal Year (FY). The Government Fiscal Year runs 1-October-30 September. All funds appropriations have limits in the duration of when they must be spent or lost to the Program. All funds appropriations are also subject to adjustments within any given FY, within a the Congressional budgetary cycle, and throughout the Program's life cycle.

Given this environment, the Government Program Manager must establish and maintain a program schedule capable of providing the roadmap to a future project completion date. Next, the author will present analysis of how Government projects could be affected by different types of funding delays and the schedule impact of those delays.

Overview of Funding Delays and Scheduling Impacts

In a *Logistics Management Institute Study* entitled Accelerating the Decision Process on Major Systems Acquisition, the authors reviewed 13 major Government Programs to determine how to best influence more timely completion of government projects. One of the Study's major findings was inadequate and untimely program funding contributed substantially to stretching out the completion date of Government Projects.

In a *Rand Study* entitled Three Programs and Ten Criteria Evaluating and Improving Acquisition Program Management and Oversight Processes within the Department of Defense, 'Funding is Stable' was listed as one of the 10 criteria for a successful Government program. The *Rand Study* evaluated one program from each of the three Services: the United States Army's Comanche Program; the US Navy's F/A-18E Program, and the U.S Air Forces F-22 Program. The authors of the Rand Study expected to find that stable funding for each of these otherwise relatively successful Programs would have been assured, given the high priority of these systems and the fact that these systems represented the future technological upgrade of each of the respective Services existing aviation assets. However, the Study concluded that budget instability plagued all three programs. Program Managers in each of these Programs, on an annual basis, had been forced to re-schedule and renegotiate efforts to allow their Programs to stay within the appropriations that were set annually.

The DoD Program Manager actually faces three primary types of funding delays. They are 'Colors of Money' (Color of Money) delays, 'Quantity of Dollars' (Quantity of Dollars) delays, and Timing of Dollars (Timing of Dollars) delays. All three types of funding delays can come at any phase of the program and will impact the Program Schedule in different ways. In addition, all three types of funding delays will influence completion of Functional Area activities within program phases and the ultimate project completion date.

Some generic examples of the types of funding delays and their schedule impacts follow. A Color of Money delay of RDTE funds at the outset of a Program can delay the start of the Program, since the early Systems Engineering, Test & Evaluation, and Software Development activities of the Program must be funded by RDTE funds. A Quantity of Dollars delay in any particular phase of the Program can delay the activities & schedule of the Functional Areas and delay the successful completion of the Phase-ending Milestone event. A Timing of Dollars delay occurs when the Government budgetary process provides inadequate funding of either a particular type of appropriation (Color of Money) or an inadequate quantity of dollars (Quantity of Dollars) in any particular FY. A Timing of Dollars delay generally leads the Government Program Manager to stretch-out the overall program schedule.

Impact of Program Schedule Stretch-out

Extensive program schedule stretch-out delays project completion and may also increase overall program costs. In an *Air Force Institute of Technology (AFIT) Thesis* entitled Investigation of the Short Range Cost Impact of Program Stretchout, the author examines the impact on program costs due to a program stretch-out. The *AFIT Thesis*

concludes that direct costs increase in a program schedule expansion, due to loss of specialized skills, layoff costs, loss of learning, training costs, retooling, overhaul, replacement of special tools and special test equipment, additional set-up costs, and overtime during a subsequent program acceleration. Indirect fixed costs also increase in a program schedule expansion due to the extended period of performance. Finally, the scope of the program may be expanded by lengthening the time to complete selected activities in order to minimize certain costs peculiar to program stretch-out. Lengthening project activity times usually causes increased direct labor costs.

In a more recent article from *Acquisition Quarterly*, entitled The Relationship between Cost Growth and Schedule Growth, the authors evaluated 59 major programs to determine whether there was a direct correlation between schedule growth and cost growth. The authors concluded from their statistical analysis of the data, that while the program schedules of the programs studied did have a tendency to grow, they did not find the anticipated correlation between cost and schedule length.

Thus, it can be concluded that while Government Programs do have a tendency to stretch out their program schedules, a program schedule stretch-out does not always a guarantee an increase in the cost of the program.

Funding Delays and Scheduling Impacts Critique

In this part of the paper, the author considers the schedule impacts of the three types of funding delays on a specific Government project and analyses them in terms of the type of funding delay and the impact on the schedule. The author was directly involved in supporting the Program Manager for this Program. The author will describe the Program and then present an analysis of the planned schedule and a revised schedule showing the impact of each of the funding delay types.

Mounted Battle Command on the Move (MBCOTM) Program

The MBCOTM Program is a US Army Command, Control, Communications, and Computers Program (C4). The Program involves the purchase and installation of a large package of communications gear and computers onto three different vehicle types. The requirement for the program was initially validated in FY 03 (April03) for two vehicle platforms and scheduled for delivery to the field in FY's 07&08. The initial schedule was based on seeking minimal unplanned funding for the Program and fielding a minimum number of systems to keep the cost down. At the first major decision review, the Army Executive Leadership promised full and early funding for the Program, outside of the normal POM process. The Program Manager was asked to expand the number of systems, increase the number of vehicle platforms from 2 to 3, and accelerate the schedule to allow for early delivery of the Program, starting in FY 06. In June, 2003, the Program was told the promised full funding of re-programmed dollars would not be forthcoming. In addition, the Program was directed to seek funds through the normal budget process for all new start programs.

The Program completed the budgetary process and submitted the initial Program budget for inclusion in the FY06-FY11 POM cycle. In May, 2004, the Program was

given its first budget. The proposed budget did not include any RDTE funds for the first two FY's of the Program (Color of Money Issue); included major gaps in the total quantity of dollars for the life-cycle of the Program (Quantity of Dollars Issue); and included gaps in the timing of the dollars (Timing of Dollars issue). The resultant schedule, with the new budget was a delay of formal program start until FY 06 and ultimate delivery to the field was slipped until FY's 08, 09, and 10. The original planned schedule, the accelerated schedule, and the post POM schedules are shown as Appendices A, B, and C. As this Program provides a specific example of the schedule impact of all three types of funding delays, the remainder of the paper will focus on the schedule impacts on this program for each type of funding delay.

Color of Money Funding Delay

During FY 03 and into FY 04, the MBCOTM Program Manager had heavily marketed the MBCOTM Program using demonstrator prototypes at DoD Trade Shows. This generated a great deal of interest and enthusiasm in the field for the Program. However, since the initial MBCOTM Program budget did not include any RDTE funds for the first two FY's, the formal start of the Program was delayed for two years. The Program Manager made the decision to begin the formal Systems Engineering process with some limited re-programmed RDTE dollars he received outside of the normal budget process in FY 04. The limited funds allowed for payment of staff salaries and to continue development of limited prototypes. At this point, the field enthusiasm for the MBCOTM Program waned and the Program also lost its Executive Project Sponsor. It was also at this point, the Program Manager was re-assigned and an interim Program Manager was assigned.

Quantity of Dollars Delay

The FY 06-11 POM submission contained an additional Unfunded Requirement of $20M in RDTE ($10M in FY 04 and $10M in FY 05) and $20M in OPA dollars in FY 05. The purpose of these dollars was to attempt to maintain an early fielding of a small number of MBCOTM platforms in FY 06. The actual POM submission contained over $600M and was designed to allow for full research, development, production, and deployment of all the required systems. The actual budget received in the POM was less than $200M. The revised program budget represented such a significant reduction in total dollars; the Program Manager was forced to not only push back the fielding of the system until the FY 08-11 timeframe, but also to reduce the number of systems to be fielded. This caused a further erosion of field support for the Program.

Timing of Dollars Delay

The FY 06-11 POM submission also contained gaps in the RDTE and Production dollars. DoD Program are generally structured with a front end of RDTE funds that ramps up until the Production dollars kick in after 1-3 years of RDTE funding. In addition to not receiving any RDTE in the first two years of the Program, the new budget contained Production dollars in FY 06. Production dollars are normally authorized at the completion of a Milestone C decision. This lack of RDTE dollars at the front end of the

Program, coupled with the relatively early provision of Production dollars, forced the Program Manager to again revise the Program's Acquisition approach. The Program's scope was reduced and a less capable package had to be developed to allow for the early use of the Production dollars in FY 06.

Final Analysis of MBCOTM Funding Delays

The MBCOTM Program accurately presents the potential schedule impacts of the principle types of funding delays in Government projects. In addition, the MBCOTM Program presents the types of trade-offs to schedule, based on funding delays, a Government Program Manager must make. As with the major aviation programs examined earlier in this paper, this Program Manger was forced to re-plan and revise Program efforts based on funding delays caused by budgetary constraints and unstable funding. In commercial industry, a project budget is established and a project must be executed against that budget. In the Government, a Program Manager must often execute against a moving budget target that changes at least annually and sometime more often.

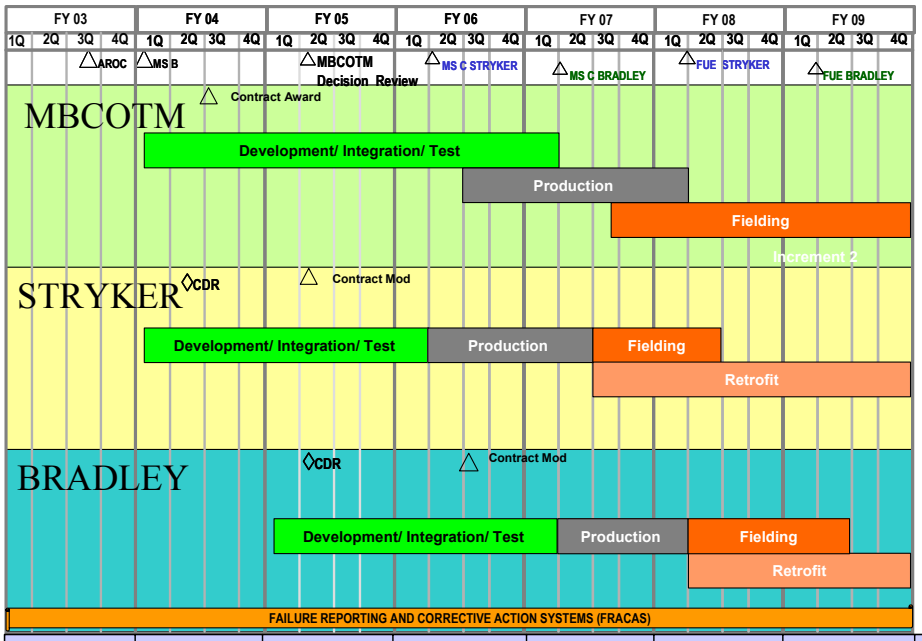
Concluding Remarks

Government DoD programs are structured in a unique environment and governed by Federal Law, DoD Directives, and Congressional Budgetary constraints. This complex environment is further complicated by the Government's life-cycle management mandate to the Government Program Manager. The Government Program Manager must manage and maintain numerous Functional Area schedules, while completing the program within the framework of the master Program Milestone schedule. Annually a Program Manager must manage multiple budgetary appropriations types, without compromising the Program's overall acquisition approach and projected completion date. The Program Manager generally also must try to complete a project within a 6 year budget cycle, or risk losing support for the Program. In some cases, the field need for a Program is such that even a 6 year budget cycle is too long.

Government DoD Program Managers face a challenging environment with respect to establishing and maintaining a program schedule. Funding delays only further complicate and already complex environment. This paper showed the impact on schedules of the typical types of funding delays a Government DoD Program Manager will encounter.

Appendix A—Original Proposed Schedule and Budget in April, 2003

MBCOTM Proposed Program and Fielding Schedule

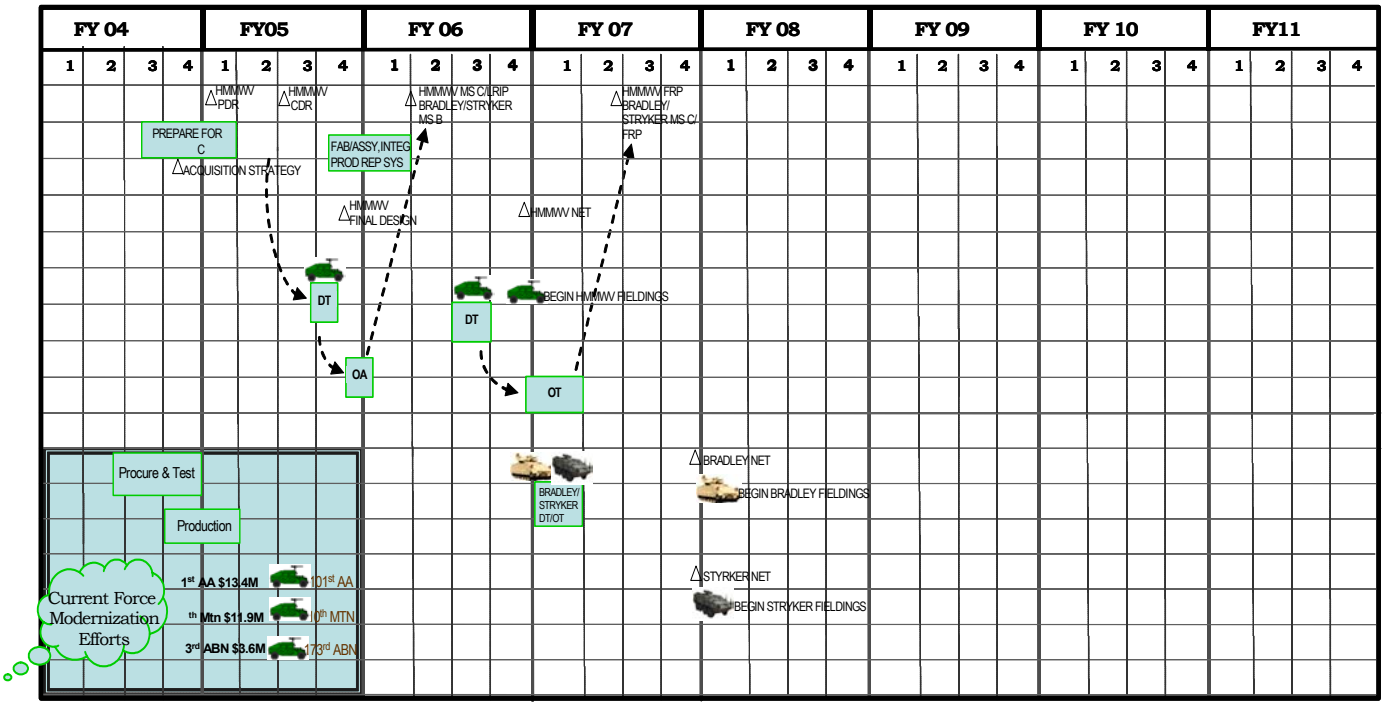


▲ MILESTONES
◇ Decision
STRYKER
BRADLEY

$	FY04	FY05	FY06	FY07	FY08	FY09	TY$
RDT&E Total	4	24	17	1	0	0	46
OPA Total	5	15	41	60	39	25	185
TY $	9	39	58	61	39	25	231

Appendix B—Accelerated Schedule and POM Budget (December, 2003)

Proposed MBCOTM Program & Funding Chart



TOTAL PROGRAM: $657.26M

POM 06 – 11 BAND I UFR 85 SYSTEMS

BAND II UFR 60 ADDITIONAL SYSTEMS

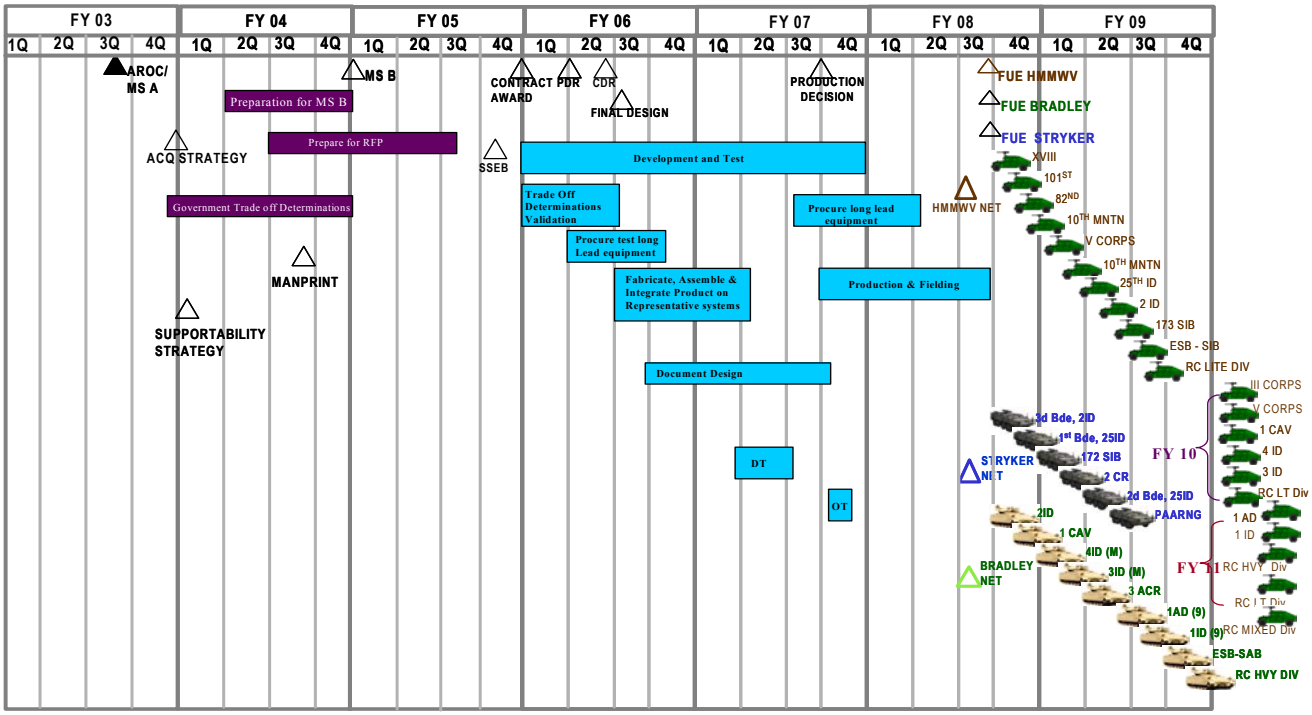
	FY04	FY 05	FY 06	FY 07	FY 08	FY 09	FY10	FY11	TOTAL
RDT&E	10.00	10.00	51.37	42.82	10.81	.750	.750	0	126.50
PROC	0	20.00	60.80	145.79	132.16	61.94	23.13	8.46	452.28
O&M	0	0	2.00	4.78	11.84	18.39	20.55	20.92	78.48
TOTAL	10.00	30.00	114.17	193.39	154.81	81.08	44.43	29.38	657.26

NOTES:

- **SCHEDULE BASED ON FULL FUNDING OF FY04/05 UFRs PLUS FY06-11 POM.**
- **SCHEDULE SLIPS TO THE RIGHT IF FULL FUNDNG NOT RECEIVED.**

Appendix C—Post-POM Budget & Program Schedule in May, 2004

MBCOTM Proposed Program and Fielding Schedule



	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	Total
RDTE REQ	6.7	3.8	15.9	7.2	2.1	0.0		35.7
Funded	0.0	0.0	0.0	10.8	0.8	0.8		12.4
UFR	6.7	3.8	15.9	-3.7	1.3	-0.8		23.3
PROC REQ		25.2	42.6	48.4	35.4	8.3	0.0	159.9
Funded	0.0	10.9	19.8	76.2	49.0	28.2	12.9	197.0
UFR	0.0	14.3	22.8	-27.8	-13.6	-19.9	-12.9	-37.1

Note 1: Budget Numbers are in $M
Note 2: Revised POM provided funding for only 81 systems.

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George Langbein holds a BS in Business Administration from Widener University and a MBA from the University of Puget Sound. George Langbein also is Defense Acquisition Work Force Improvement Act (DAWIA) Certified Level III in Government Program Management and holds the Project Management Professional certification. George Langbein also completed a full career as a Commissioned Officer in the US Army and served as a Government Program Manager and the Director of the Defense Acquisition University's 20-week Program Manager's Course. George Langbein's most recent assignment was as the Principal Analyst at the Office of the Program Manager of the Mounted Battle Command on the Move Program at Ft. Monmouth, NJ. George Langbein's research interests and career experience are in large scale program management of information technology programs in both the Government and commercial industry.